



## TEXAS DEPARTMENT OF STATE HEALTH SERVICES

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COMMISSIONER

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June 26, 2007

Environmental Protection Agency  
1445 Ross Ave, Suite 1200  
Dallas, TX 75202-2733

Attn: Gary G. Miller (6SF-RA)

RE: Preliminary Data Analysis  
Gulfco Marine Maintenance  
Fish and Crab Data  
Freeport, Texas

Mr. Miller:

In response to an Environmental Protection Agency (EPA) request, the Texas Department of State Health Services (DSHS), Health Assessment and Toxicology Program is evaluating the public health implications of exposure to contaminants present in fish and crab in the Intracoastal Waterway near the Gulfco Marine Maintenance Superfund site in Freeport, Texas. The results of our preliminary analysis of fish and crab data collected in November and December 2006 as part of the remedial investigation are included in this letter. Complete data analysis will be included in a health consultation that will be prepared over the coming months.

The Gulfco Marine Maintenance Superfund site is a former barge cleaning facility located in Freeport, Texas. The site encompasses 40 acres on the Intracoastal Waterway. In 2004, DSHS prepared a Public Health Assessment for the site under a cooperative agreement with the Agency for Toxic Substances and Disease Registry (ATSDR). Contaminants in soil and sediment were found to pose no apparent public health hazard and the groundwater pathway posed no public health hazard. The seafood consumption, surface water, and air pathways were categorized as an indeterminate public health hazard because at that time no data were available for evaluation of those pathways.

We derived health-based screening values using guidance from the ATSDR to determine the public health implications associated with ingestion of contaminants in fish and crab tissues. These screening values are based upon both cancerous and non-cancerous endpoints. Exceeding a screening value does not necessarily mean that adverse health effects will occur, only that the contaminant warrants further investigation.

### Fish and Crab Data

Red drum (6 samples), southern flounder (9 samples), spotted seatrout (9 samples), and blue crab (9 samples) were collected by Benchmark Ecological Services, Inc. and analyzed for a series of contaminants that had been detected in the sediment of the Intracoastal Waterway. These contaminants included polycyclic aromatic hydrocarbons (PAHs) benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenz(a,h)anthracene, and indeno(1,2,3-cd)pyrene, pesticides 4,4'-DDE, 4,4'-DDT, and hexachlorobenzene, and metals lead and silver. The EPA collected sample splits from blue crab (1 sample), southern flounder (1 sample), and speckled seatrout (2 samples) and analyzed these samples for all PAHs, pesticides, and metals.

Screening values for non-cancerous health effects were derived using seafood intake rates of 15 g/day for children and 30 g/day for adults, body weights of 16 kg for children and 70 kg for adults, the Minimal Risk Level (MRL) or Reference Dose (RfD) for each contaminant, and two meals of seafood collected from the Intracoastal Waterway per week. For each contaminant considered to be a carcinogen, a 1 in 1 million ( $1 \times 10^{-6}$ ) cancer risk and the cancer slope factor were used in addition to the above parameters to determine cancer risk and the potential for cancerous health effects to develop. For those contaminants that exceed screening values for either a cancerous or non-cancerous health effect, the estimated exposure dose and lifetime excess cancer risk were calculated using the maximum concentration of the contaminant detected in the fish and crab samples. For contaminants that were not detected above their analytical detection limit, the detection limit was used as the maximum concentration to assume worst-case scenario.

Using the data collected by the EPA, arsenic was the only contaminant in which the estimated exposure doses for children and adults exceeded the MRL, and there was a low increased risk of cancer due to exposure to arsenic via ingestion of seafood. Seafood is known to contain the greatest amount of arsenic of all food items; however, in fish and shellfish, the arsenic present is generally in less toxic organic arsenic form. The MRL and associated elevated estimated exposure doses and cancer risk for arsenic are based on the inorganic form, and no risk values have been derived for organic arsenic. Assuming the majority of the arsenic detected in seafood samples from the Intracoastal Waterway is organic arsenic, it is not likely that ingestion of fish and crab collected in this area would pose a human health threat.

Using the data collected by Benchmark Ecological Services, Inc., PAHs (considered as a mixture) and hexachlorobenzene had a low to moderate increased risk for cancer due to exposure via ingestion of seafood. The estimated exposure doses (children and adults) for hexachlorobenzene also exceeded the MRL. However, most of these contaminants were not detected in the fish and crab tissues and therefore the maximum concentration for each was the detection limit. Because the elevated exposure doses and cancer risks are based upon the detection limit for each contaminant and not an actual concentration detected in the tissue, these exceedances may be a function of poor detection limits rather than a true human health risk. The EPA data had lower analytical detection limits for these compounds, resulting in lower worst-case scenario maximum concentrations for each contaminant. Based upon the limited EPA data, it is not likely that PAHs and hexachlorobenzene in fish and crab would pose a human health threat. However, because of the high detection limits for PAHs and hexachlorobenzene in the Benchmark Ecological Services, Inc., data, we cannot state with certainty that fish and crab samples collected from the Intracoastal Waterway are safe to eat.

### Conclusions

Based upon our preliminary analysis of the November and December 2006 data, we do not expect to see health effects associated with exposure to contaminants in fish and crab collected from the Intracoastal Waterway near the Gulfco Marine Maintenance Superfund site. A more detailed description of our data analysis will be included in a health consultation that will be prepared over the coming months. In the event new data become available, we will review those data and provide an analysis of public health implications associated with those data upon request.

If you have any questions, please contact me at (512) 458-7111 extension 3004.

Sincerely,

Carrie Bradford, MS, PhD  
Toxicologist  
Health Assessment & Toxicology Program

cc: Susan Prosperie, Manager, DSHS Health Assessment and Toxicology Program  
Jennifer Lyke, Regional Representative, ATSDR Region 6, Dallas, Texas  
Jeff Kellam, Technical Project Officer, ATSDR, Atlanta, Georgia